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An Appraisal of the Bombing of North Vietnam
Through 18 December 1967

SUMMARY

1. (S/NFD) The bad weather resulting from the Northeast monsoon sharply limited air activity over North Vietnam during the reporting period. Air operations against targets in the Northeast were possible for only five days in November so that the air attack was concentrated in the southern Panhandle. The North Vietnamese took advantage of this respite from the high level of attacks of the past few months to repair bomb damage to the major rail and systems, particularly those in the Northeast. As a result the overall capability of the transportation system improved slightly.

2. (S/NFD) Attacks against highways, bridges, rail yards and rail sidings on routes leading south from Hanoi and Haiphong, however, continued to disrupt the movement of supplies and gave the North Vietnamese little respite. On the northeast rail line the Hanoi Railroad/Highway Bridges over the Red River and the Canal des Rapides were restructed on 14 and 15 December and again rendered unserviceable. The importance of these two bridges to the North Vietnamese transportation system is reflected in the continuing efforts made to restore them despite repeated interdictions. Repairs have required an average of four to six weeks, and the manpower and resources used to repair them suggest that the alternatives -- bridge bypasses and ferries -- are less efficient and more costly in terms of manpower, time and effort.

3. (S/NFD) Although few attacks were made against industry during

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the reporting period and there was a slight improvement in the availability of electric power, modern industry remained almost at a standstill. Electric generating capacity increased slightly as a result of partial repairs to the powerplants at Hanoi, Nam Dinh, and Hon Gai, and probably at the Viet Tri Powerplant. The recent rice harvest and a good vegetable crop have alleviated current requirements for food imports, which declined significantly during November. The Hanoi regime maintained its apparent strong resolve to continue the war effort. Although the people show signs of weariness with the war, there are no indications of open dissent.

4. (S/NFD) Cumulative effects of the air strikes have clearly degraded North Vietnam's capability for sustained large-scale conventional military operations against South Vietnam. Cumulative measurable damage through November is estimated at \$385 million. There are, of course, many other losses to the regime, that cannot be meaningfully quantified.

Effects on Military Targets

1. (S/NFD) Air operations were restricted by northeast monsoon rains during the reporting period. Only 7,300 attack sorties were flown in November, compared with a monthly average of about 11,500 during the summer. The major effort was directed against the transportation system, and attacks against rail yards, bridges, truck parks, transshipment points, and transport equipment continued to have disruptive effects. Because of continuing repair and construction activities,

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however, the capability of the transport system generally improved. Airfields, SAM sites, AAA installations, and POL storage were also struck.

2. (S/NFD) The capability of North Vietnam's rail system improved temporarily with the repair of the key Hanoi railroad/highway bridges over the Red River and the Canal des Rapides and the reduced number of airstrikes against the northern rail lines. Photographs of 20 November revealed that both bridges were serviceable for truck and rail traffic. These bridges were restruct on 14 and 15 December, however, and are again unserviceable, forcing the use of less efficient alternate modes of transportation. On the basis of previous experience, it will take the North Vietnamese four to six weeks to make repairs.

3. (S/NFD) Rail traffic to and from the port of Haiphong continued to be disrupted by the destruction of the Haiphong Railroad/Highway Bridge. In addition, the bridges at Hai Duong on Hanoi-Haiphong rail line were attacked during the latter part of November. Aerial photographs of 15 December revealed that rail service was available through this area. Attacks against the Haiphong Railroad Yard West on 28 November interrupted, for a few days, the use of this area as a trans-loading facility for goods moving from the port. Other strikes on the northern rail lines were made against the Yen Vien Classification Yard on the Hanoi-Dong Dang line and several yards on the Hanoi-Lao Cai line.

4. (S/NFD) Most rail targets attacked were on the Hanoi-Vinh

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line, where weather conditions were generally more favorable than in the north. This rail line was not useable for through service to Vinh, but rail movements were possible between the interdicted bridges or heavily damaged yards. Reported losses of railroad rolling stock remained at the low levels reported in October.

5. (S/NFD) The number of attack sorties flown against the highway system increased over the October level. The attack against the highway system was concentrated in areas south of Hanoi and Haiphong in an attempt to reduce the flow of materials into Laos and the DMZ. On 26 November, B-52's attacked several large truck parks and storage areas along Route 15 north of Mu Gia Pass. Moderate to heavy traffic continued on this route and Route 7.

6. (S/NFD) The three main highway bridges leading from the port of Haiphong remained interdicted. The movement of goods from Haiphong was not halted, however, as there were at least ten highway ferries and highway pontoon bridges available as bypasses around the interdicted bridges. Photographs of 19 November showed construction activity at the main bridges. The Cam Pha Railroad/Highway Bridge, located south of Cam Pha port on Route 18, was heavily damaged by strikes on 19 and 20 November. The destruction of two additional bridges on Route 18 disrupted traffic and limited the use of this road as an alternate to Route 5 between Haiphong and Hanoi. Reported destruction of and damage to motor vehicles were the lowest noted since early 1967.

7. (S/NFD) A recent review of BLACK SHIELD photographic missions

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flown in October over northern North Vietnam provided a basis for estimating the truck inventory deployed north of 20° 30'. Photographs revealed that motor transport equipment was concentrated in the Hanoi-Haiphong, Kep-Thai Nguyen, Hon Gai-Cam Pha and Lao Cai areas. Counts of 3,700 to 3,800 vehicles were made on the two missions. Approximately two-thirds of the vehicles were located within urban centers, with the remainder on highways or in military areas, villages, and other rural areas.

8. (S/NFD) Roadway widening and realignment continued in the northwest along Route 191 near Dien Bien Phu, on Route 4 in the vicinity of Lai Chau, and on Route 132 running south from Than Uyen. This construction activity is viewed as part of the continuing North Vietnamese effort to increase truck transport capability from the Chinese border. Possible new road construction was also noted 16 nautical miles southwest of Hanoi adjacent to Route 21 and south of Route 6. Construction in the Panhandle was concentrated in the vicinity of Quang Khe and Dong Hoi and primarily involved the improvement of established routes.

9. (S/NFD) An article published in Hanoi in September discussed the mass use of people to repair and construct transportation routes south of Vinh on two occasions. The article referred to the employment of nearly 300,000 people, including youths, militia, women, children, and the elderly for four days and nights on one occasion and for several days and nights on another. Expansion of existing routes,

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repairs to bridges, construction of new roads and stockpiling of material were among the tasks reportedly accomplished. While the time frame was not stated, such activities may have coincided with the 1967 TET or previous bombing pauses.

10. (S/NFD) Pilot reports of destruction and damage to watercraft were at about the same lower levels reported during the past two months. The location of POL barges sighted during the month suggested that they were still being routed south along the coast from Haiphong and then inland on the waterways. Recent photographs revealed extensive watercraft activity between Haiphong and Hanoi. Moreover, observed barge traffic, transshipment operations, and several new waterway-related transshipment points reflected the increased reliance being placed on waterborne transport to clear cargoes from Haiphong. US seeding of magnetic influence bombs during the month was concentrated on key bridges and bypasses, principally in areas near Hanoi and Haiphong.

11. (S/NFD) The North Vietnamese air defense system continued to reflect an increasing sophistication and aggressiveness. Throughout the entire country, a total of 28 US aircraft was lost in the last 30 days. SAM activity decreased, with about 350 missile firings being reported. SAM's accounted for nine losses; MIG's accounted for seven losses; AAA and unknown causes accounted for 12 losses.

12. (S/NFD) More US aircraft were downed by MIG's during the reporting period than in any other since last spring. This enemy

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success is attributed to a combination of pilot skill and effective ground control, improved tactics, and more effective use of the air-to-air missiles. Five of the seven US aircraft shot down were credited to MIG-21's using missiles. Two of the US aircraft shot down were F-105's on SAM-suppression missions. This suggests an increased effort to seek out and destroy these aircraft to reduce the threat to SAM units. While the current air order of battle in North Vietnam is small, it is likely that Hanoi will continue to mount a selective yet increasingly sophisticated effort to harass US strike efforts against key targets.

13. (S/NFD) Although the number of launches decreased, the SAM system was also relatively effective and was credited with downing nine aircraft. Barrage-type firing was noted against strike forces. Indications of SAM activity continue to be detected in the DMZ area, although no launches were reported. The Vinh area was once again active, with several missile firings noted. This could indicate a shift of battalions from the north to provide better defenses in the southern section.

14. (S/NFD) Attacks against the transportation system continued to disrupt the distribution of military and economic supplies. Delays and use of less-efficient modes of transport were required. Poor weather conditions, however, which influenced both the level of the air activity and the type of targets attacked, afforded a respite and opportunity for the North Vietnamese to repair some of the primary lines of communication. Because the logistics requirements are modest, the

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North Vietnamese still retain the capability to support activities in South Vietnam and Laos at present or increased combat levels. The cumulative effects of the airstrikes have degraded North Vietnam's capability for sustained large-scale conventional military operations against South Vietnam.

Leadership and Public Reaction

15. (S/NPD) Spokesmen for the Hanoi leadership continue to voice their apparent determination to continue the war effort. A 12 December statement appearing in the party press rejected any consideration of the Vietnam question by the United Nations. Difficulties in procuring food, clothing, and other necessities continue to be reported. Nevertheless, there is no indication of open dissent or any significant effort to frustrate government directives.

16. (S/NPD) Recent information indicates that at least three North Vietnamese government ministries have been moved from Hanoi: the Ministry of Agriculture, the Ministry of Water Conservation, and the Ministry of State Farms. Since relocation activity was reported as early as January 1966, it is likely that additional government agencies have already moved out of Hanoi and that others will follow.

Effects on the Economy

17. (S/NPD) Most of North Vietnam's modern industry continues to be inactive because of bomb damage and a shortage of electric power. Moreover, there is no evidence of reconstruction or production at the major manufacturing plants.

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18. (S/NFD) Partial restoration of damaged power facilities increased generating capacity to about 25 percent of the pre-bombing level compared with about 20 percent in October. Four powerplants within the main power network -- Hanoi, Nam Dinh, Hon Gai and Viet Tri -- currently are in partial operation. The Hanoi powerplant is operating at about 50 percent of capacity; the others are operating at considerably lower levels. The increased output from these four powerplants can be used only locally because of previous extensive damage to the main power distribution network and the removal of transformers from main substations. There are no signs of restoration at the other damaged powerplants, all of which will require a minimum of three months to restore to partial operation after repair work is resumed.

19. (S/NFD) There were no significant losses of petroleum from bombing during November. Identified petroleum imports in November amounted to 20,700 metric tons, including 7,000 metric tons from China which may have been some of the Soviet petroleum delivered to south China earlier in the year. The estimated current rate of petroleum consumption is 19,600 metric tons per month. Stocks on hand at the end of November were estimated at 60,000 metric tons, about 90 days supply.

20. (S/NFD) Although the North Vietnamese claim that the tenth month rice harvest was fairly good and food imports declined in

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November, production was probably below normal because of a poor growing season and the reduction in acreage planted to rice. The production of vegetables is greater than last year, reflecting in part more use of rice fields for vegetables.

21. (S/NFD) Total identified seaborne imports were 105,600 metric tons during November. The level of bulk food imports dropped sharply during November to 20,500 metric tons, about half the 1967 monthly average. Bulk food imports of more than 400,000 metric tons thus far in 1967 provided about 10 percent of the food consumed. Prior to the bombing, North Vietnam imported about 5 percent of the food consumed. Miscellaneous cargoes -- transportation, construction, and industrial equipment and materials -- reached a record high of nearly 65,000 metric tons. Several shipments of cement totaling about 10,000 metric tons were imported in November -- the second month in 1967 that cement imports have been identified.

22. (S/NFD) Identified seaborne exports of 21,900 metric tons during November were well below the ten-month average in 1967 of 50,900 metric tons. Exports of miscellaneous and general cargoes decreased sharply. Coal exports increased slightly to 18,500 metric tons. There continued to be no detected exports of apatite, cement, or pig iron.

23. (S/NFD) Average layover time for freighters departing Haiphong in November was reduced to slightly less than 18 days, compared with 19 days in October and 33 days in August. Increased lightering at the main wharves and the smaller volume of export cargoes account for the

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slight improvement in turn around times.

24. (S/NFD) Cumulative measurable damage attributable to the ROLLING THUNDER Program through November is estimated at \$385 million (see Tab B). In addition to measurable losses, there continue to be many other losses to both the economy and to the military establishment which cannot be assigned meaningful values.

Value of Economic and Military Damage
Attributed to the ROLLING THUNDER Program
1965 Through November 1967

<u>Economic</u>		<u>Military</u>	
<u>Direct Losses</u>	<u>Million US\$</u>	<u>Direct Losses</u>	<u>Million US\$</u>
Railroad/Highway Bridges	32.9 a/ b/	Barracks	30.0 a/
Transportation Equipment	73.7	Ammunition Depots	5.3 a/
Electric Powerplants	32.9	Motor Vehicle Depots and	
Petroleum	7.5	Supply Area Depots	11.0 a/
Manufacturing Facilities	17.9	Airfields	1.6 a/
Railroad Yards and Shops	6.2 a/	Radar and Communications	
Maritime Ports and Shipyards	2.6 a/	Sites	2.9
Miscellaneous Armed		SAM Sites	8.1 a/
Reconnaissance	2.3	Naval Bases	1.9
		Aircraft	43.2
SUBTOTAL, Direct Losses	176.0	Naval Craft	4.8
		Miscellaneous Armed	
<u>Indirect Losses</u>		Reconnaissance	18.4
Exports	33.4	TOTAL, Direct Losses	127.2
Agriculture c/	39.5		
Fishing	9.5		
		<u>TOTAL</u>	
SUBTOTAL, Indirect Losses	82.4	<u>MILLION US\$</u>	
		Economic	258
TOTAL, Direct and Indirect	258.4	Military	127
		TOTAL	385 a/

a. Estimate is incomplete because of inadequate post-strike photography.

b. Of the total, \$6.0 million is estimated to have been expended to date on the repair of damaged and destroyed bridges and \$26.9 million is estimated for complete restoration in the future of bridges damaged or destroyed. In addition, \$1.7 million would be required to make temporary repairs to presently unrepaired bridges.

c. losses of agricultural crops are arbitrarily attributed entirely to the indirect effects of the bombing. An unknown part of these losses is in fact due to weather and other natural causes.

d. Excluding the cost of trucks destroyed and damaged in Laos and economic and military facilities and equipment destroyed and damaged by US naval operations along the coast of southern North Vietnam.

TAB B

Comments on CINCPAC Evaluation -- Military Resupply

A respite in the bombing theoretically would permit the North Vietnamese to greatly accelerate the shipment of weapons, equipment and ammunition from the North. It can not be shown, however, that the present air war has put a relevant cap on the focus that the communists can support in the South or that the enemy has not been able because of the air war in the North to build needed stockpiles in the South and in Laos. A cessation of the bombing in North Vietnam would not alleviate one of the most immediate and growing problems of Communist forces in South Vietnam -- internal transport and resupply of combat units in country, a problem directly related to intensified ground operations of US forces.